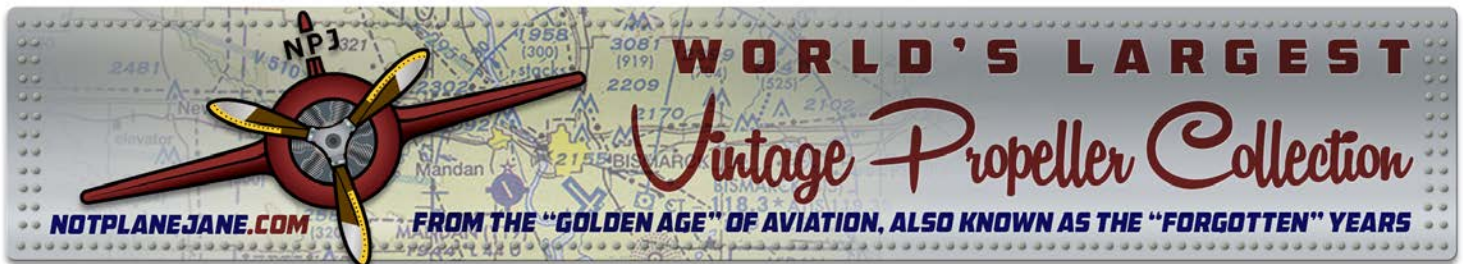


Aviation QUARTERLY

Vol. 28 • Issue 4

North Dakota Aviation Council

Fall 2016



A Treasure of History

By Darrel Pittman and Kris Magstadt

It was like following a treasure map. The GPS led me to an alley behind Main in Mandan. An unobtrusive building made me wonder if I was in the right place. Walking into the building, I was reassured that I had found the treasure I sought: a propeller collection that is known worldwide by many collectors and is one of North Dakota's well-kept secrets. This collection, also known as *Not Plane Jane*, is owned by Monte and Grace Chase.



Monte Chase and wife, Grace, with the Not Plane Jane collection.

While visiting with Monte, I asked what spurred him to collect propellers. His response was:

"Airplanes have always been a part of my life. My family was actively involved in aviation and operated an FBO with sales worldwide for nearly fifty years. I acquired the first propeller in my collection when I was seventeen, a gift from my uncle, Bob Chase, when I received my private pilot's license. Since then, I have become a dedicated collector of wooden ground adjustable and controllable pitch propellers."

Monte set out and repaired the gifted Cessna 120/140 Sensenich propeller without much knowledge, but he got it done, and that challenge was the beginning of it all. In 2006, the collection consisted of between 60 and 70 propellers. Today it boasts a total of 118 props. The value of the propellers ranges from a \$1000 small fixed pitch Sensenich to a three blade Hamilton Standard 3E50 valued at nearly \$100,000. The collection has propellers from both civilian and small military trainers, containing multiple first production serial numbers, including ones and other low numbers. Additionally, you will find many extremely unusual prototype propellers, such as the one pictured below, and 26 one-of-a-kind and new old stock propellers that cannot be duplicated.



Chase's collection contains the most complete collection of propellers from throughout the "Golden" Age of Aviation.

Metal propellers replaced the majority of the early wooden fixed pitch propellers during the mid-1920s and 1930s. The wooden propellers represented in this collection are rare and of limited

Continued on page 14.



Job Opening – Executive Director See page 5 for details

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Kris Magstadt,
Editor

AROUND the PATTERN

What an adventure! I not only had the privilege to view the Not Plane Jane Collection, but to make a new friend. Monte Chase has a passion and is a perfectionist. It's reflected in all the work he does, from propeller restoration and building to his artistic talents in seeing possibilities. I truly hope you enjoy the story and make it a point to see this stunning propeller collection. It's worth the visit!

It has been a long held belief of mine that aviators have a passion rivaled by few. Monte is a great example with his commitment to accurately assembling his historic one-of-a-kind collection. I also see the commitment to the future by the Council through their decision to move forward and hire an executive director. Additionally, the Council's commitment to market and encourage education efforts to introduce aviation to the next generations is visionary.

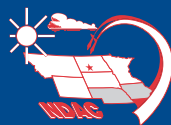
You will see many examples throughout this edition of passion and commitment: AOPA putting aviation in classrooms; technology to make information available quickly; Fargo Air Museums focus on STEM education; Esmond Engkvist's aviation award; Florence Klingensmith's story; Aviators visiting North Dakota in Supercubs and seeing firsthand the beauty and treasure that is North Dakota; and the articles to educate and inform from the umbrella groups. I am very proud to be part of this amazing effort and encourage readers to consider submitting stories or photos.

Our next issue will be full of Upper Midwest Aviation Symposium information. One more example of your North Dakota Aviation Council's commitment to continuing and growing aviation.

North Dakota Aviation Quarterly (NDAQ)

Official Publication of the North Dakota Aviation Council

Statements of fact and opinion are the responsibility of authors alone and do not imply an opinion on the part of officers and members of NDAC, or NDAQ staff. If you've received more than one copy of this newsletter, please share it with a friend.



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Jon Simmers, Chairman
North Dakota Aviation Council

CHAIRMAN'S COMMENTS

An Investment In Our State's Aviation Advocacy

As a quick refresher, The North Dakota Aviation Council (NDAC) was founded in 1983 by six state aviation organizations interested in promoting aviation in the state and in presenting their concerns before government and the general public. The NDAC was founded with the notion that solutions to problems facing aviation in this state could best be served by consolidating and working together, rather than struggling as independent special interest groups. NDAC seeks to serve aviation professionals by providing a forum for the exchange of information, ideas and experience among their peer-pilots, agricultural operators, airport managers, FBOs, mechanics, and educators. Advancing their goals is an important function of the Upper Midwest Aviation Symposium (UMAS), our annual convention to be held in Minot, March 5-7, 2017. Over the years, NDAC has become an influential voice for the flying public and aviation services in North Dakota. By combining our talents and resources, we set to explore answers to the most pressing issues of today and ready ourselves for the exciting challenges of tomorrow.

In the last edition of the *Aviation Quarterly*, I wrote about the challenges of determining "is it the chicken or the egg?" The article explored a few long-term challenges with maintaining the long-term health of the NDAC and what is required to continue to drive the mission that was set in 1983 by our founders. At our last Council Meeting, we discussed this subject matter at great lengths, and have come to the conclusion that it is time to try something new with the NDAC. The Council has recently made the decision to hire an Executive Director to continue to drive our founding mission.

The goal is to have someone hired before UMAS in March of 2017. We anticipate paying someone a half-time wage to work approximately 15-25 hours per week. The intent is to hire someone for a two-year contract. The contract will allow ample time to establish the position and requires a review at the two-year interval. The two-year review will provide a mechanism to ensure the effectiveness of the position and to make necessary adjustments. The current structure of the new position will not affect any membership or UMAS dues during the 2017 Symposium in Minot.

I'm encouraged that the vote of the current Council members sparked great debate, but primarily views the new position as an "asset" to the Council rather than a "liability." As an asset, the Council views this new position as an investment into the long term future of the organization. If we go back to the roots of the organization, one of the primary interests was to help promote aviation in the state of North Dakota. The Executive Director position will help us grow the organization and become more pro-active in promoting aviation in our state, by executing several of our state alignment initiatives that we have developed over the years.



So... if you know of anyone that is well organized, has great computer skills, is a great communicator, and can be an advocate for North Dakota Aviation, pass along our encouragement for them to apply! A job description is on page 5. To apply for the position or to inquire further, contact Jon Simmers, Chairman, via email at jons@bismarckaero.com.

UPPER MIDWEST AVIATION SYMPOSIUM

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MARCH 5-7 2017

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**More details in the
next Quarterly.**



Job Opening – Executive Director

Primary responsibilities include, providing leadership to the Council (board) members, lead planning initiatives for the Upper Midwest Aviation Symposium, drive the strategic plan and make recommendations, align NDAC initiatives with the North Dakota Aeronautics Commission, ensure strict adherence to NDAC budget, implement directives from the NDAC, increase membership, and drive fundraising initiatives. (Approximately 1100 hours annually.)

A detailed job description at
www.ndac.aero/JobPosting.htm or
jobsnd.com. Deadline: December 2

To join our team, apply by sending
your resume and cover letter to
chairman of the North Dakota
Aviation Council, Jon Simmers at
jons@bismarckaero.com.

Preferred job skills include:

- MS Office Proficiency and use of database marketing tools
- Organizational, problem solving, analytical skills and written and oral communication skills
- Strong passion and/or previous aviation experience
- Relationship building and/or fundraising experience
- Basic financial acumen
- Ability to multi-task, including working with multiple individuals
- Event planning experience
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Kyle Wanner, Director
North Dakota Aeronautics Commission



DIRECTOR'S Chair

Preserving North Dakota's Aviation History

As we move forward through life, it is critically important to understand where we have been to help us to decide where we need to go. Learning about our aviation history is also one way to invigorate and refresh us to once again become excited about why it is that we love aviation. Below are a couple of recommended ways that you can research, learn, and participate in North Dakota's vibrant aviation history.

Aviation Publications

As the Aeronautics Commission staff was sorting through old files, it was recently discovered that our agency had kept multiple aviation publications from many years ago...some dating all the way back to 1946. We took the effort to scan these documents and post them on our website for public viewing. The following publications can be found on the Aeronautics Commission website at: <https://aero.nd.gov/education-programs/aviationpublications/>

- Dakota Flyer: 1946–1948
- Central Flyer: 1949
- North Dakota Aviation Newsletter: 1954–1979
- Relative Wind: 1979–1983
- North Dakota Beacon: 1983–1984
- North Dakota Aviation Quarterly: 1987 to present

I encourage you to take a stroll back in time and read through some of the articles that our previous generations took the time to write. I guarantee that you will be amazed at some of the articles and pictures that you will find within these publications.

Aviation Museums

Our aviation museums in Fargo and Minot are critically important to preserving the heritage of aviation in North Dakota. They are excellent places to experience living history and are a real gateway for aviation enthusiasts to learn more about our past. Both museums offer group guided tours and special educational programs for our youth. Please check out North Dakota's museums on-line and visit them in person to learn more about the opportunities that they offer.

There is also an ongoing effort to develop a new air museum in Bismarck. To find out more information on the project or how you can contribute or get involved, visit www.bismarckairmuseum.org

Aviation Hall of Fame

The North Dakota Aviation Hall of Fame was established to honor those who have made major achievements in aviation within North Dakota. The North Dakota Aviation Hall of Fame

has a physical location in the terminal building at the Bismarck Municipal Airport that honors all inductees. Physical kiosks also exist at the Fargo Air Museum, Minot Air Museum, and the Bismarck Heritage Center that contain information regarding each inductee. More information on the North Dakota Aviation Hall of Fame can be found on the North Dakota Aeronautics Commission website, as well as, the video introductions of the most recent Hall of Fame inductees. If you are considering nominating someone whom you know is deserving of this award, please complete the nomination form found on our website and submit it to the Aeronautics Commission office.

State Historical Society - Archives

The North Dakota Heritage Center in Bismarck also holds a vast treasure of aviation history. The state archives hold letters, photos, maps, and other unpublished materials from private individuals and organizations that document economic, social, cultural, and political life in North Dakota. To view what categories of aviation history are available at the state historical society, you can visit their website at: <http://history.nd.gov/archives/stateagencies/aeronautics.html>. The staff at the state historical society are very helpful and can assist anyone that wants to stop in and view the aviation historical information that they have on file.

The North Dakota Aeronautics Commission is committed to helping preserve aviation history through supporting our aviation museums, providing structure for the North Dakota Aviation Hall of Fame, preserving documents at the state historical society, and writing for and preserving our aviation publications. Please utilize our information as best you can to learn, remember, and share the experiences of aviation history throughout North Dakota.

Wishing you smooth flying, Kyle

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AOPA to Partner With Purdue University to Put Aviation in High School Classrooms

FREDERICK, MD – The Aircraft Owners and Pilots Association (AOPA) and Purdue University have announced a partnership to develop aviation-related science and math curricula for high schools across America. The program will be the first of its kind, offering students comprehensive four-year aviation study options that are aligned to rigorous math and science standards used in many states nationwide.

The High School Initiative is part of AOPA's You Can Fly program, which was created to bring more people into aviation. By educating high school students about aviation career opportunities, helping lapsed pilots return to flying, lowering barriers to entry, reducing the cost of flying, and building the aviation community, You Can Fly is helping people of all ages get involved with aviation.

"You Can Fly is making aviation more inviting and accessible to everyone," said Katie Pribyl, AOPA senior vice president of communications and head of the You Can Fly program. "Humans have always dreamed of flight. Now we're offering new ways for people to connect with that dream. For high school students, the curricula we're developing will offer a chance to explore the many fascinating aspects of aviation while making math and science more relevant and fun."

The curricula will incorporate grade-appropriate learning,

building on the skills and knowledge developed in each grade level. To facilitate that process, ninth-grade classes for all four learning pathways will be rolled out first, with initial implementation anticipated in the 2018-19 school year.

Purdue University President Mitch Daniels said the partnership continues Purdue University's efforts in STEM (science, technology, engineering and math) education.

"The new curriculum program gives students an opportunity to further develop their math and science skills in order to bolster the future of the aviation industry and create new possibilities in transportation," Daniels said.

In addition to curriculum development, the AOPA High School Initiative is bringing educators together to share ideas and expertise when it comes to implementing aviation-based STEM education at their schools. More than 200 individuals from across the country are expected to take part in the second annual High School Aviation Symposium set for Nov. 6 and 7 in Seattle. Representatives from both AOPA and Purdue will speak about developing the curricula. Symposium participants also will have the opportunity to discuss best practices for aviation-based STEM education and tour Raisbeck Aviation High School, a top aviation high school. Anyone interested in attending should check the website or email HS@aopa.org.



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FLY-IN GALLERY

Have you been to a fly-in recently? Send your pics to ndaviation@yahoo.com

July 30 Bowman (KBWW) Fly-In featuring raging inferno.

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BISMARCK

On the hours of 9 a.m. and 11 a.m. on 9/11, Bob Wefald talked to all in attendance at the Bismarck Aero Fly-In about the 9/11 attacks and how they have shaped us into who we are today. Everyone in the crowd stood to say the Pledge of Allegiance with the VFW 1326 Honor Guard presenting the colors.

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Car show at Bismarck Aero Fly-In on September 11, 2016



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Jared Wingo, Airport Planner
North Dakota Aeronautics Commission



Issuing NOTAMs Online

For years, the FAA has been advising airport sponsors to utilize an electronic NOTAM system as a means to issue NOTAMs in a concise and timely manner. When compared to the traditional method of issuing NOTAMs through 1-800-WX-BRIEF, the electronic system promises to reduce errors in terminology and time needed to issue NOTAMs from roughly seven minutes down to one second.

As of Spring 2016, roughly 670 airports within the National Airspace System have activated and utilized the online FAA NOTAM Manager with over 300,000 NOTAMs transferred to the new electronic management system. Using a plain language format, airport managers or designees are able to quickly select impacted components with the selection of drop-down boxes and/or search results. Once the pending NOTAM has been entered correctly, the user is then allowed to submit the NOTAM and, almost instantaneously, receive notification that the NOTAM is activated. This electronic system also has the ability to notify airport tenants and users automatically via text, email or fax notifications.

The NOTAM Manager website will also streamline reporting requirements as part of the Takeoff and Landing Performance Assessment (TALPA) standards that were implemented on October 1, 2016. Utilizing this electronic method, airport sponsors will be able to rapidly report the Runway Condition Assessment Matrix (RCAM), which categorizes conditions to provide pilots the most up-to-date airport information.

In conjunction with the FAA and AAND, we will be providing additional guidance and possible training opportunities in the near future to assist airport managers in navigating this new system.

If you would like to learn more about the new FAA NOTAM manager, you can find more information, as well as begin the registration process, by following this link:
<https://notams.aim.faa.gov/scert/>

As always, please call either Ben West, or me, if you have any questions about your airport.

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Be an inspiration

The theme for the upcoming Upper Midwest Aviation Symposium (UMAS) is *Inspiring the Next Generation*. I hope that when we gather together in Minot in March, that we are able to inspire each other, while inspiring the next generation. I also hope that this inspirational time is carried with you throughout the year, and although not every person reading this will be able to attend UMAS, I challenge you to be an inspiration to our next generation.

There are many ways to be inspirational. I recently had a chance to visit Hatton, North Dakota; the birthplace of North Dakota's only inductee in the National Aviation Hall of Fame, Carl Ben Eielson. His flights over Alaska and the Arctic Ocean, both as an explorer and offering transportation, earned him recognition and multiple awards. While visiting the museum, it was easy to find myself envisioning being around during his time and reading of the news of his

flights. It was an inspiration to think that a young man from Hatton, North Dakota could have such an impact and be recognized around the globe.

Similar feelings can be felt when we enter any museum. You certainly do not have to travel all the way to the Smithsonian museum in Washington, D.C. to be inspired. In North Dakota, we have the Fargo Air Museum, Dakota Territory Air Museum in Minot, and the Carl Ben Eielson Museum in Hatton. These museums teach us about the history of aviation and provide inspiration to go make your own impact.

You do not have to fly the fastest airplane or make news recognized around the world to be an inspiration. Schedule some time for you and a young person to visit a museum, go to an airport, or maybe take them for a flight. What may seem simple to you, may be the inspiration for a young child to become the next Carl Ben Eielson.

WHO INSPIRED
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Fargo Air Museum Focused on STEM Education

By Lesa Hagen

The Fargo Air Museum is excited to be an organization focused on STEM education collaborating with other institutions and businesses within Fargo/Moorhead and surrounding areas. In order to meet the increasing needs and numbers of students in our area, the museum has been expanding their education programs with help from grants from institutes such as the F/M Area Foundation. The museum has been hosting monthly STEM related aviation camps like engineering, rocket launching, weather, electronics, welding, as well as many others. The museum offers two different levels of camps, the Junior Aviator Camp is geared towards students ages 6 to 10 and the Senior Aviator Camp is geared towards students ages 11 to 18. The funds from the F/M Area Foundation grant allow more supplies and equipment to be purchased for these camps. One of the purchases will be UAV's (Unmanned Aerial Vehicles a.k.a. Drones). These UAV's are designed to be built from scratch, teaching students about electronics, flight dynamics and much more. Students will be able to repair them when they crash.

The museum is also thankful to the North Dakota Aeronautics Commission for the grant funding that allows students to attend the camps free of charge. This enables all students to attend regardless of their ability to pay. North Dakota Aeronautics commission also covers admission costs for students attending with a school tour, allowing schools to visit even on a tight school budget. This funding gives the museum a unique opportunity to impact a wide variety and number of students.

Not only do the camps allow students to be exposed to exciting STEM hands-on experiences, but it introduces them to the museum and the many STEM related volunteer opportunities available there as well. After attending a recent aviation camp, a nine-year-old boy decided to start volunteering at the museum. His father wrote to the museum:

"I am writing in support of the volunteer program at the Fargo Air Museum. My son has recently become involved with the program and I couldn't be happier with the impact it has had on him. He is 9 years old and I have yet to see an activity that has captured his attention like this one has. Being in the airline business, I have personally witnessed the decline in numbers of young people getting into the industry over the last decade. I am thankful to programs like this that inspire the next generation of aviators and help preserve a very important part of aviation history".

- Eric Anderson Airbus 320 Pilot

Being able to experience fun STEM learning that is hands-on, gives children a wonderful opportunity to expand their education and open the doors to better jobs, better salaries, and hope. The opportunity for children to attend these camps regardless of their family's financial situation, is priceless. Thank-you to all of the volunteers, institutes, and businesses that have helped make the Fargo Air Museum's Aviation STEM Camps a growing success! Check out the Fargo Air Museum's website at www.fargoairmuseum.org.



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Esmond's Engkvist wins aviation award

By Sue Klemetsrud, Benson County, Farmers Press, Minnewaukan, ND

Esmond resident Robert Engkvist recently returned from his third trip to the Experimental Aircraft Association (EAA) convention in Oshkosh, Wis. -- and this time he brought home a special souvenir.

Engkvist was named Reserve Grand Champion in the "Plans Built" category for the Starduster he built in his farm shop. He received a trophy for his efforts.

"It was really unexpected," he said. "I didn't know if I should even have it judged."

The EAA AirVenture is one of the largest airshows in the world, with more than half a million people attending each year.



Gannon, Sherri and Robert Engkvist are pictured near Robert's plane at the EAA AirVenture in Oshkosh, Wisc.



This year, more than 12,000 planes flew into Oshkosh and surrounding airports for the week-long event -- that included over 1,100 home built aircraft, over 1,000 vintage airplanes, 371 warbirds and a multitude of other non-traditional aircraft.

Visitors registered from a record-tying 80 different nations, including 340 people from Australia and 167 from Argentina.

Engkvist said he has attended the event in the past, but has always traveled by car. This year, he flew while his wife Sherri and son Gannon drove.

"They were my ground support," he said.

He said the flight from Maddock to Oshkosh was just over four and a half hours, with two fuel stops along the way.

The trio spent the week at the airshow, taking in the different events and exhibits.

"They fill the entire airport grounds," he said. "It would take a minimum of three days to walk and see everything."

Engkvist said one of his favorite demonstrations was the Martin Mars Water Bomber, a seaplane built for the Navy in World War II.

"We saw that fly in and drop water, it was pretty neat," he said.

Engkvist said they really enjoyed the trip, even though he didn't know he had won an award until he arrived back home. "I got home Friday and I got a text Saturday," he said. "I was really surprised."

Engkvist slowly constructed a Starduster plane in his farm shop over the course of two decades. He completed the aircraft last year and took his maiden flight in May 2015.



Esmond resident Robert Engkvist snapped this picture of a small portion of the airplanes that were on hand for the EAA convention in Oshkosh, Wisc. He said it would take a minimum of three days to walk around and see everything.

Not Plane Jane Collection:



108 of 118 Propellers

Continued from Cover Story



Continued from Cover Story

number due to the short period of production, merely eight years, and the conditions that affected them. Bird strikes, gravel and moisture made it difficult to keep them balanced. These propellers were easily damaged and not safely repaired which led most of them to be removed and discarded.

The “Golden” Age of Aviation (1926 thru 1947) has sometimes been called the “Forgotten Years” of aviation. This is the only time in history that the restoration and completion of a propeller collection from this era and to this extent and rarity has even been achieved. During the “Golden” Age of Aviation, the United States went from producing 3000 airplanes a year before 1939 to responding to wartime needs that saw annual production of aircraft reach more than 96,000 by 1944.

By January 1941, nearly a year before United States involvement in World War II, manufacturers could no longer get aluminum-alloy sheet or even aluminum-alloy extrusions for use in light aircraft and commercial airplanes. The nation’s entire production of aluminum was being used for military purposes, either to build up our own forces or to help those who would later be our allies. During this time the wooden propeller returned to production to keep general aviation and the small military trainers flying.

The shortage of aluminum before and during the war, led many manufacturers to design ground adjustable, variable pitch and constant speed propellers using wooden or composite propeller blades. Hamilton Standard had contracted with “ERCO” Engineering Research Corporation and Freedman Burnham Aircraft Corporation to profile a wood laminate, “Compreg” propeller blade to retro-fit their metal SAE 20, 30, and 40 spline

counterweight hubs. These Hamilton Standard propellers had been in production with metal blades from the early 1930s and were mainly being used for the military. The wooden blade propeller manufacturers of this era were: Engineering Research Corp “ERCO,” Freedman Burnham Aircraft Corporation, Beechcraft “ROBY,” Hartzell “Hartzite,” Hoover Hydraulic Propeller, EVEREL Propeller Corporation, Aeromaster, Aeromatic Propeller, Continental Aviation Sky Power, Sensenich “Skyblade”, Maynard DiCesare, Camfield and Gardner.

Monte’s collection focuses on the wooden propeller blades with metal ground adjustable, variable pitch and constant speed hubs from 1938 through 1946. Additionally, it contains a small number of metal propellers that represent the period prior to the wooden collection, the oldest include a 1926 Hamilton Aero and a Standard Steel ground adjustable and the newest, a 1938 with a Hamilton Standard Hydromatic 22D30. The Hydromatic propeller revolutionized the military and the airline industry due to its compact design that had demonstrated its safety and dependability in millions of flight miles.

The Evolution of the “Gearshift of the Air”

The variable-pitch propeller was a critical propulsion technology to the aeronautical design revolution of the later 1920s and early 1930s. The new device bridged the gap between the two major advances of that revolution in the sky: aerodynamic drag reduction and increased engine power.

J.R. Kinney, Journal of Aircraft, National Air and Space Museum

Propeller Collection



Monte's first propeller from his Uncle Bob.



The Schwarz type of blade lamination consists essentially of a main core of laminated spruce or other light wood, which merges into a root of impregnated and compressed hardwood, called “Compreg” wood. The blade is then threaded and screwed into a metal ferrule, which supports the blade into the hub. The blade is covered completely with a heavy coating of reinforced cellulose acetate sheet, and the leading edge is armored with a strip of stainless steel metal.

In 1946, after the war was over, aluminum was again available for propeller production and most wooden propellers were removed and again replaced with the more desirable and dependable metal propellers.

The controllable propellers are much heavier than the wooden fixed pitch props commonly used as wall hangers and mantel displays. This caused many of the controllable propellers to be disassembled and displayed as a single blade with the hub simply discarded. While building this collection, Monte occasionally found a single blade, sometimes a pair, or a parts missing hub. Not always being able to find the complete propellers, Monte searched and acquired the parts separately from all over the world.

Once the parts were located, Monte carefully cleaned, preserved, and assembled to the original manufacturer's condition. However, not all the additional spare parts are used on propeller restoration. Monte creates original works of art and wonderful aviation memorabilia, such as a replica Cessna logo converted to billet aluminum and acrylic mounted on a Jacobs piston and connecting rod (shown below).



Tracy Forrest, Monte Chase and Jack Pelton, past president of Cessna Aircraft, accepting the Cessna award at Oshkosh



As you walk around the shop with Monte, and see the miscellaneous aircraft parts, you will hear him say, "these items are re-purposed into art and display items for awards and man caves!"

This complete and stunning collection, however, doesn't consist of only propellers. The collection has parts, original manuals, sales catalogs, an extensive library with many books from the inventors, and

over 700 magazines dated from as early as 1925. The manuals are fascinating, and you can find everything you need to know about the individual propellers. Because of his amazing group of resources and his extensive knowledge, Monte has had inquiries from many collectors, propeller shops, and museums, including the Smithsonian National Air and Space Museum (NASM), who has commented on the quality, condition, and rarity of the collection.

So, ask yourself, "what is the possibility of organizing an 80- to 90-year reunion and having a complete roster or membership show up in one place at the same time?" The answer is only once in a lifetime might this be possible. The Not Plane Jane collection from the "Golden" Age of Aviation is that once in a lifetime. Located at 114 West Main Street in Mandan, you can contact Monte directly at 701-663-0453 for information or to visit the shop. The collection also has a website, notplanejane.com, that includes an immense amount of interesting information and some of those interesting creations Monte has made from anything airplane.

"It has been an interest of mine to preserve this time in aviation history. Now that it's nearing completion, I want to share it with everyone that is interested in this era. This collection is meant to represent, as completely as possible, a particular historical period, "the forgotten years of aviation," along with an artistic beauty of the wooden propellers."

Monte is the son of Monroe Chase of Mandan airport history. It was great to visit Monte, especially since I once purchased an airplane from Monroe and flew it for many hours.

About the authors

Darrel Pittman has been on the North Dakota Aviation Council close to 18 years and has written numerous articles for the North Dakota Aviation Quarterly about his air traffic control career and the Civil Air Patrol. Darrel published a book, *Cleared For Takeoff*, in 2016.

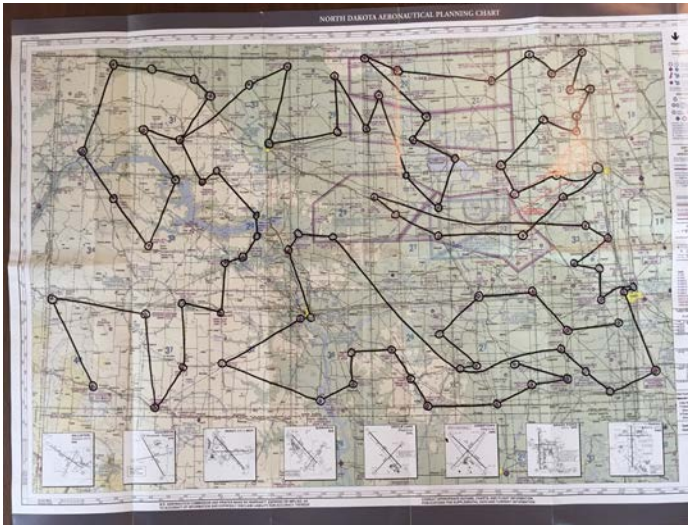


Kris Magstadt is in her eighth year as editor of the North Dakota Aviation Quarterly

Adventurous Supercubs Fly North Dakota

By Wendy Lessig

What do you get when you cross five out-of-state Supercub pilots with the Fly North Dakota! Passport program? You get a nine-day flying adventure, landings at all 89 public airports in North Dakota (plus a few extra landings) in just under 40 hours of flight time, one state-border crossing, one international border crossing, one historic fort, one county fair, several turtle statues, and a priceless amount of fun.



North Dakota aeronautical chart that shows our route to all 89 public airports.

It all started two years ago, when Bill and Yvette, from Ohio and Nebraska, were going to meet up with Wendy, from Utah, to explore Minnesota by air on the way to Oshkosh. Due to a miscommunication about scheduled departure dates, the Ohio Supercub and the Utah Super Cruiser flew toward each other, and settled on an airport we both could reach by sundown on the appointed meet-up day, which happened to be Kulm (D03), North Dakota. It was totally by happenstance, Plan B or C, that we ended up in Kulm. However, it was our good fortune to meet Lorence at Kulm, who greeted us warmly and treated us like family. We would later learn that friendliness and kindness were common traits among the North Dakotans that we met. Lorence enthusiastically introduced us to the Fly North Dakota! Passport program and encouraged us to explore a few of the airports in

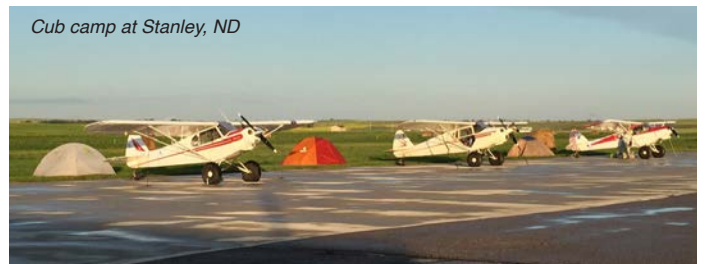
North Dakota on our way to Minnesota. That little preview corner of North Dakota had us hooked. It was then that the plan was hatched to Fly North Dakota! on our way to Oshkosh in the near future.

In July 2016, five Cub pilots from across the United States, Wendy (Utah), Bill and Yvette (Ohio and Nebraska), and Jay and Carol (Texas), started at the southwest corner and zig-zagged our way throughout North Dakota, not missing a single public airport. To be honest, North Dakota was not at all like we had imagined it would be. We were expecting a flat, dry, barren, windy, empty landscape, devoid of interest. It was anything BUT that!



Hettinger, ND – Carol Beard, Jay Pratt, Yvette Tracy, Bill Tracy and Wendy Lessig

We were thrilled by the diversity of scenery, terrain and landscapes. Rolling hills, farm land, hay fields, wild horses, a few forests, big and little lakes and rivers, abundant wildlife, coal mines and power plants, open ranch land, always another exciting sight to see. The badlands of North Dakota are every bit as beautiful as those in South Dakota, but without the pesky tourists. We flew along the Enchanted Highway, amazed by each statue. Not being from North Dakota, we had to use Google to find out what a missile silo looked like and, lo and behold, we saw them



everywhere, once we knew what to look for. We were very pleased to find that many of the North Dakota airports had courtesy cars available, plenty of sights to see in town, and an abundance of historical facts to learn about North Dakota – Pierre Botineau's statue and a gigantic snowmobiling turtle in Bottineau, historic Fort Dilts, the geographical center of North America in Rugby, a modern day oil-bust ghost town in Stanley, a fantastic collection of antique steam-operated threshers at the Crosby fair, to name a few. Sometimes, we didn't even have to stray far from the airport to pique our interest – awesome aviation museums in Minot

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and Fargo, the International Peace Garden and gateway to Canada, a classic old DC3 parked at Pembina, for example. We learned about French trappers, the Indian wars, Indian

reservations and could only imagine the strength, fortitude and perseverance it took for the early pioneers to settle North Dakota.

North Dakota airports rank very highly, in our opinion, with regard to amenities. As out-of-state pilots, we probably look at North Dakota airport amenities a bit differently than pilots who live in North Dakota, who may fly out to another airport for the day or have friends or relatives to pick them up when they arrive at their destination. Courtesy cars were readily available, and on-site showers were plentiful enough for us to maintain reasonable personal hygiene. Most airports had comfortable pilot lounges and weather computers, where we could wait out any delays. Most astonishing was the availability of 4G phone signal throughout every corner of North Dakota, clearly the best coverage of any state we have flown to. Being Cub pilots, we would rather buy avgas fuel than spend our limited resources on fancy hotel rooms. Cubs are small, but big enough to bring our fully-paid-for tents



Camped out at Rolla, ND, between the hangars out of the wind

and camping gear. Mostly, we camped our way across North Dakota, always finding a quiet patch of soft grass to pitch our tents. However, the weather chased us indoors on a couple of nights when severe thunderstorms moved through the area. We were very fortunate to find hangar space to tuck our Cubs in out of the weather on those stormy nights. We are ever so grateful for the North Dakotans who helped us in our time of need.

We thoroughly enjoyed our adventure and have probably seen more of North Dakota than some of the residents of North Dakota. We were touched by the openness and sincerity of all the North Dakotans that we met and hope that we can return again soon. North Dakota has been a well-kept secret until now. We will be telling all of our friends to come Fly North Dakota!



The Fly North Dakota Airports Passport Program is a fun reason for pilots to get out and fly while supporting aviation in North Dakota at the same time.

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North Dakota Female Aviator: A Record Setter

By Curt Eriksmoen

North Dakota's first licensed female pilot was killed in 1933 while competing in an airplane race against the best male pilots in the nation. Florence Klingensmith was in fourth place at the international air race in Chicago when fabric from a wing ripped loose causing the light weight air ship to nose dive into the ground. At the time, Klingensmith was a national celebrity having set the women's record of loops in an airplane.

Florence Gunderson was born September 3, 1904, to Gust and Rossie Gunderson. Gust had a small farm near Oakmound, north of Moorhead, and supplemented his income by driving bus and working as a janitor at the Oakmound School during the winter months. In 1918 the Gundersons moved to Moorhead where Florence attended high school.

Florence was a daring girl who was obsessed with speed. In 1919, she learned how to operate an automobile, which she frequently drove with the throttle wide open. To try attaining faster speeds, she and her brother George built a race car out of a used car and later they purchased a motorcycle. While in high school, Florence got her first ride in an airplane at a fair in Fargo.

After Florence's junior year, the Gunderson's moved to a farm six miles north of Detroit Lakes, Minnesota. Florence quit school and took a number of jobs including herding sheep in Montana,

chopping trees in northern Minnesota, clerking at stores in Fargo and driving a truck for the Pantorium, a Fargo dry-cleaning establishment. It was here she met Charles Klingensmith whom she married on June 25, 1927. However, her real love would soon become flying, and the marriage was short lived.

Florence was among the crowd who saw famed pilot Charles Lindberg when he visited Fargo on August 27, 1927. She was now convinced that she would become a pilot. Early in 1928, she enrolled at a Fargo auto and electrical school run by August Hanson. This school provided ground training for people who wanted to become pilots. Two people who provided flight training to Florence were Carl Ben Eielson and E. M. Canfield. Canfield was a Williston pilot who won the Crookston air derby. He put on what he called an "air circus" and agreed to give Florence flying lessons if she would perform stunts in his shows. The stunts that received the most publicity were parachute jumps and hanging by her teeth from a rope suspended from the undercarriage of the airplane.

After completing her solo flight on June 18, 1928, Florence knew she needed her own plane. That winter she went door-to-door, asking Fargo businessmen to provide money for a plane. Her motto, "I'll risk my neck if you'll risk your money" convinced six business owners to put up \$3000. In return, Florence agreed to



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promote Fargo and carry advertisements at fairs, flying meets, and air races.

After completing a month's training at Moline, Illinois, Florence purchased a plane in April 1929. She flew it back to Fargo and christened it "Miss Fargo." Florence also had a nickname, "Tree Tops." In June, she received her flying license, becoming the first licensed woman pilot in North Dakota. She traveled the mid-West performing aerobatics and other flying stunts.

On April 19, 1930, at Fargo's Hector Airport, Florence established the world's record for female pilots with 143 loops. Months later, this record was eclipsed by Laura Ingalls with 980 loops. Florence was determined to get the record back, but that would have to wait.

In June, Florence served as director of women's activities for the Northwest Aircraft Exposition in Minneapolis. She was on the exposition's committee with Eddie Rickenbacker and other notable pilots. In September, she was hired as traffic manager of American Eagle Airlines, a company that operated passenger and mail service between Minneapolis and Kansas City. Finally, on June 21, 1931, before a crowd of 50,000 spectators, Florence departed from Wold Chamberlain Field in Minneapolis. After four and one-half hours, she completed 1078 loops, a new women's record.

Florence was also heavily involved in air racing, winning more than her share of women's competitions. At Cleveland, in 1932,

she won the most coveted prize in women's aviation, the Amelia Earhart Trophy. She then began competing against men. The major race of 1933 was the Frank Phillips Trophy Race in Chicago held on September 4. Originally, Florence was not scheduled to compete, but Robert L. Hall, the pilot of a souped-up Gee Bee racer, was scratched a short time before the race. He was replaced by Florence who had flown the plane only once before.

The race at the Curtis Reynolds Airport was 100 miles and consisted of 12 laps around pylons. The average overall speed was close to 300 mph. Florence's aircraft originally had a 220 horse power engine, but it was replaced with a 670 horse power motor. Florence did not get a good start, but soon began to make up time by banking sharply on the turns. By lap seven, she was in fourth place when suddenly, fabric ripped loose from one of the wings. Florence kept control and leveled the plane south of the airport. For perhaps a mile her craft climbed gradually and then went into a dive.

Florence tried to bail out, but her parachute became entangled in the fuselage. When her plane plunged into the ground she died instantly. Florence Gunderson "Tree Tops" Klingensmith died one day past her 29th birthday. At her funeral, the Fargo businessmen who funded her first airplane served as pallbearers. The eulogy was provided by Reverend J. C. Brown, "The Flying Parson" who said, "If she could speak to us now she would tell us not to loose faith in aviation because of the tragedy that ended her flying career."

(Written by Curt Eriksmoen and edited by Jan Eriksmoen. Reach the Eriksoens at cjeriksmoen@cablone.net)

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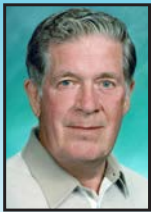
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Linden Joaquin Cofell, known as Jo by most of his family and friends, went to meet his Heavenly Father on July 16, 2016. He died of complications caused by Alzheimer's while residing at the Baptist Health Care Center, Bismarck, for the past 14 months.

In 1957, Jo received his private pilot's license and would fly his own plane to inspect various job sites in the state. He loved Bonanza airplanes and flew his family on several trips across the U.S. His friends enjoyed the annual fly-in fishing trips to Canada. Many summer weekends were enjoyed with his boys, boating and water skiing, and later with his grandsons at the family pool.



Alice (Lee) Grimstad passed away Oct. 2, 2016, at CHI St. Alexius Health, Bismarck. Graveside services will be held at 11 a.m. Thursday, Oct. 6, at North Dakota Veterans Cemetery, Mandan. She will be interred at North Dakota Veterans Cemetery alongside her husband. Alice loved bowling, playing

cards, gardening, church activities and traveling. Alice was also a pilot for a time, having been taught to fly by her husband.



Bradley M. Kramer, 52, Mandan, died unexpectedly on September 21, 2016. Brad was a licensed pilot and also enjoyed camping and fishing. Brad was the face behind the North Dakota Aviation Council (NDAC) website and was always ready and willing to assist in getting Council information updated and shared. Brad was also instrumental in the placing of kiosks in the North Dakota aviation museums.



Captain Nicholas Sikes, Civil Air Patrol Senior Member and friend, passed away on Friday, September 23, as a result of injuries sustained in an automobile accident. Captain Sikes joined the North Dakota Wing Civil Air Patrol squadron in January 2015 and was very active in aircraft and emergency service operations.

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Jay M. Flowers / FAA Safety Team Program Manager, OPS, North Dakota, 701-492-5809, jay.m.flowers@faa.gov

If you look back to the time of your initial flight training, you start to remember a sequence of events that taught you how to fly, when to fly, and most importantly what you needed to know to remain safe in an aircraft. Time goes by and you find that training is something of a shadow of what it was back then. Why?

The aviation industry has proven time and again that training saves lives. Understanding that flight training is nearly 15-20 times more costly today than it was back in the early years of my aviation career, I look at 100s of logbook entries that reflect a lifelong career of maintaining a level of safety that has led me to this position as a FAASafety Team Program Manager. Training instilled in me learning how to do it better may someday, give me the skills I would need to prevent a potentially catastrophic event from harming my passengers or even myself.

Safety for all that it is, is rarely ever number one. If you keep telling yourself that I will be safe, I will be safe, I will be safe... eventually in your quest to be safe you become complacent and safety is simply a thought and not an action.

In nearly every Accident/Incident we review, the outcome could have been avoided if the Airman had just taken the time to truly understand and practice the event through proper training. Keep in mind that accident and incidents do not become such until the aircraft touches the ground. Think about that... It's like the statement: *The fall won't kill you but the sudden stop at the end will certainly ruin your day.*

They say we are what we eat. Chew on this for now:

- If the aircraft had just been at 1500 feet rather than 500 feet you could have recovered...
- The Maximum Demonstrated Crosswind component for your aircraft is not a limitation... YOU are the limitation!
- Glider practice is not just for glider pilots
- Emergency Procedures should be part of your normal preflight and training
- Every Flight must be a learning experience. Practice what you know needs improvement:
 - *Stabilized Climbs – Give yourself an airspeed and stick to it*
 - *Stabilized Descents – Give yourself an airspeed or rate and stick to it*
 - *Constant Airspeed turns, climbs, and descents – Trim, Trim, Trim*
 - *Stall recovery and Spin management – Practice with a local CFI*

- *Pick a spot on the runway and make it happen – Someday you may need this*
- *Know your limits and develop a plan with your CFI to improve your skill level*



Finally, the Flight Review required by CFR Part 61.56 was implemented to allow the FAA some latitude by allowing CFI's to review, observe, and by endorsement confirm that your skills as an Airman remain at or above the minimum standards found in the PTS or ACS. When the challenge of determining your abilities is no longer manageable by the CFIs your next Flight Review may have to be with a DPE or an Aviation Safety Inspector.

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Flight Review

By Terry Sletto

I remember when the BFR (biennial flight review) came into being; no one knew what to expect. "Will I pass this ride or fail it and lose my license?" "How do I prepare for this?"

The good news is that it has never been a pass/fail program that threatens your ticket. Rather, it has been, and still is, a program to help pilots continue safe flying and to upgrade their piloting skills. Falling under the authority of FAR 61:56, the AC 61-98B puts it this way:

The intention of the Flight Review is to be an industry-managed, FAA monitored currency program. [It] is not a test or check ride, but an instructional service designed to assess and enhance a pilot's knowledge and skills.

Often times, the pilot will say, "I haven't done a steep turn or stall since my last Flight Review." At this point, it becomes a review of the elements in a steep turn, the hazards involved, and reminders about safe ways to maneuver the aircraft. It can be an enjoyable hour of flight!

The FAR asks us to have at least one hour of ground review as well. This can be a beneficial review of the FARs, sharing of experiences, or updating of the latest FAA concerns and directives. An example might be the discussion of runway

incursions, TFRs, or talking about drones or local MOAs.

The greatest concern for a CFI signing a pilot off on the flight review often has to do with the pilot's last date of review and frequency of flight. The questions the CFI asks might include:

Is he or she flying enough every year to keep his or her skills up to a safe level? If not, what is the best plan to change that picture?

What are the personal, emotional or psychological impairments in that process?

What are the pilot's flight intentions? What type aircraft is the pilot planning to fly and to what destination(s)?

You can best prepare for a flight review by regularly flying your aircraft, reading about current issues in aviation, taking part in FAA seminars, visiting with other pilots, and seeing to it that your aircraft is maintained regularly.

CFIs are not examiners, but rather teachers who love flying, airplanes, and the people who fly them. Our goal is to do whatever we can to encourage each other to be safe, competent pilots who excel in our flying skills. Flying is a wonderful privilege that we have in this country. If we all work with one another, the FAA, and the various pilot organizations, i.e. AOPA, EAA, and others, we can enjoy safe flying for a lifetime.

Remember, keep the greasy side down!

Terry Sletto is a retired pastor, golfer, traveler, grandparent, and part-time instructor at Bismarck Aero Center and Mandan Aero Center



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Myths, Realities of Engine Preheating

By Jason J. Wondra, NDPAMA President

There are a number of topics hotly debated in aviation maintenance, and preheating is one of them. Most pilots learn that aircraft need to be preheated in cold temperatures, but not all pilots understand why. Oil flow is not the major reason for preheating the engine. If you operate your aircraft in temperatures at or below 32 degrees Fahrenheit, you should already be using a multiweight oil. Modern multiweight oils are designed to operate in temperatures as low as 0 degrees Fahrenheit. So, if there isn't a problem with the oil at 20 degrees Fahrenheit, why bother preheating at all? And why do aircraft engines have to be preheated, while car engines seem to do just fine without it?

The reason is understanding the basic design of a piston aircraft engine. One of the most important design factors for all aircraft engines is weight, and just about all piston aircraft engines address this challenge by using aluminum wherever possible to save weight. This includes the crankcase, pistons, and cylinder heads. Parts that are made of steel, chrome, iron, and other metals for strength include cylinder barrels, connecting rods, and crankshafts. In addition, since aircraft engines are air cooled, they lack the mass and temperature stability of a water-cooled automotive engine.

All metals expand and contract with different temperature changes, but each metal does this with different rates and coefficients of expansion, which affects the clearances in critical parts of the engine. Aluminum and steel have dramatically

different expansion properties. In colder temperatures, aluminum will contract almost twice as much as steel.

The number one reason for aircraft engine preheating is engine component clearances. When temperatures are stable and within operating ranges, the clearances between critical engine components are within spec they were designed to operate. However, when they are very cold, and especially when rapidly expanding during very cold startups, those tolerances can get tight enough to cause damage. Remember, as things heat up, everything expands including the clearances.

Crankshaft bearings are an excellent example. The crankshaft bearing is supported by the aluminum case, while the crankshaft is steel. In extremely cold temperatures, the aluminum case contracts enough to make the bearings too tight and can cause substantial wear and damage upon start-up.

This should help dispel at least a few preheating myths and explain why preheating is so important in sub-freezing environments like North Dakota. For owners that don't have an aircraft engine preheat kit installed, two styles are the most popular: the Tanis aircraft engine preheat kit and Reiff aircraft engine preheat kit. Call your local maintenance shop or mechanic for further details regarding the perfect kit for you. Until next time, fill up that thermos with coffee or hot chocolate, and make sure you plug your aircraft in!

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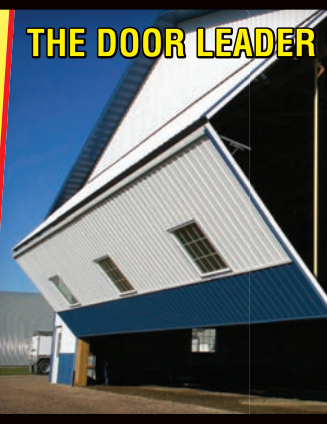
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Minot Proud to Host 2017 UMAS; Private Aviation in Minot Community Expanding

By Kash Lund, NDBAA

As the aviation community prepares for the next Upper Midwest Aviation Symposium, we in Minot also prepare to host it. Another exciting year of events, displays, networking and showcasing will bring us together as the tight-knit community we have always been. Aviation past, present and future converge in North Dakota unlike most any other state in the nation. From my perspective working at an FBO, it makes me want to share the passion with others. Working at Minot Aero Center, I am continuously supplied with interesting aviation talking points, particularly because of the Dakota Territory Air Museum, Minot Air Force Base, a new commercial terminal and the ups and downs of western North Dakota's oilfield economy.

Another talking point I am reminded of each day as I walk into our facilities is that private aviation in this community is expanding. For those of you who have not heard, or at least seen by driving along north Broadway in recent years, the General Aviation side of Minot International Airport is a rather bustling environment these days. What began as a sudden surge in business as a result of oilfield melee has since transitioned into an expansion of private aviation in the Minot community. The addition of a 28,000+ ft.² hangar, connected private lobby, pilot suites/office spaces, and customer-use garages has given Minot Aero Center the opportunity to provide unparalleled service to our business community.

I tout my organization's accomplishments not to boast, but to make it known to the public at large that Minot is open for business. The addition of a noticeable new building has brought aviation newcomers of

all ages and backgrounds to our doors for inquiry. The result has been that previously-unaffiliated individuals are learning to fly, including a number of local business owners. And those who were already in the fold have settled in yet further, making aircraft purchases and occupying new spaces at the airport, knowing they not only have a need for private air transportation in their business but that they also now have facilities to accommodate those needs.

An even more visible representation of Minot's newfound transportation accommodations is the unmistakable appearance of the commercial terminal. Only recently opened and resting beautifully atop north hill, the bright colors of the exterior and large, open windows make a positive statement for our community. Not only do these investments make it easier for locals to escape the winter, or visit family and friends in far-flung areas of the globe, it also makes life easier for those of us who travel on business. Better still, it helps us bring business to Minot. The first thing a visitor sees upon exiting an aircraft can be as important as anything else a local business has to offer them; first impressions are everything. For commercial or private aviation, Minot now has both in spades.

If you are planning to attend the Upper Midwest Aviation Symposium this March, please consider taking the time to come visit the airport and see what changes have been made. Minot International Airport and Minot Aero Center will be hosting an open house event on Sunday, March 5th from 2-4 p.m. Stop by each location and let us show you how Minot is poised to flourish for years to come.



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CALENDAR *of* EVENTS

Check out the online calendar
for details on these events:
www.NDAC.aero

November 2016

Fargo Air Museum's Camp — Nov 12
Fargo Air Museum Model Design and Building

January 2017

Fargo Air Museum Youth Camp — Jan 14 KFAR - Fargo Air
Museum Aviation Metal Work

February 2017

Fargo Air Museum Youth Camp — Feb 11 KFAR - Fargo Air
Museum Aviation Art

Tri-State Aerial Applicators Convention & PAASS Program —
Feb 13 to Feb 15 St. Cloud, MN River's Edge Convention Center

March 2017

Fargo Air Museum Youth Camp — Mar 11 KFAR - Fargo Air
Museum Aviation Painting

North Dakota Aviation Day at the State Capitol
March 27

*Please send your upcoming
dates to ndaero@nd.gov*

UPPER MIDWEST AVIATION SYMPOSIUM

Inspiring the Next Generation

MARCH 5-7 2017

HOLIDAY INN RIVERSIDE, MINOT



*More details in the
next Quarterly.*